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THE DISTRIBUTION OF HIGH-SCHOOL GRADUATES IN IOWA

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THE PROBLEM

The question of the distribution into occupations of the graduates of Iowa high schools was suggested by the investigation recently made in the state of New York by Mr. Shallies.¹ Particularly inviting for further investigation was that part of his report which showed these high-school graduates who entered the teaching profession in that state to be relatively inferior in scholarship, based on their high-school records. Another feature of the question which offered some inducement for the undertaking, was the possibility of getting information on the relation of the high schools to the colleges. A third phase of the general question and one widely discussed, particularly by business men, is the relation of the high school to the business world. The complaint is heard everywhere that pupils who have gone through our schools fail to make good in the simple clerical work of the office, store, or other commercial establishment. This study seemed to offer at least a partial answer to this criticism by finding out whether these commercial workers are truly representative.

Aside from these special features of the problem, of interest to those in special fields, there was the general question, of interest to all, of the relation of the high schools to the requirements of the state. Do the high schools of Iowa train young people for the work of the state, or do they, by failing to offer such training, compel them to go elsewhere, where competition is less sharp?

METHOD OF INVESTIGATION

In February, 1913, I sent the following letter and blank form to superintendents in Iowa towns supporting accredited high schools. (Blank is shown on p. 84.)

¹ Guy Wheeler Shallies, "The Distribution of High-School Graduates after Leaving School," *School Review*, February, 1913.

MY DEAR SIR: I am making a comparative study of high-school graduates as to what kind of college course, business, trade, or other occupation they enter. The only way to make this study is by the grades of the graduates of some recent class. I have selected the class of 1908. Will you co-operate with me in this by filling out the inclosed blank with the names of the graduates of 1908, their grades in the studies pursued, and the kind of college course, business, trade, or other occupation entered since graduation?

In states where this study has been made, information of special interest and value to the teaching profession has been disclosed.

Thanking you in advance for your co-operation in securing this information for the teaching profession in Iowa, I am

Very truly yours,

ACKLEY, IOWA
February 12, 1913

From the circular sent out, I received the high-school records of 845 high-school graduates. These graduates represent 48 high schools in as many towns or cities. The classes range in size from 4 to 83. The schools are scattered throughout the state and are therefore quite representative of the state at large.

METHODS OF COMPARING STUDENTS

First, an average was found for each of the 845 graduates. These 845 averages were then arranged in 48 groups. Thus, in the high school whose graduates make up Table I, 3 made an average grade of 80 per cent, 2 a grade of 81 per cent, 7 a grade of 82 per cent, etc. Each group making up the 48 tables was again divided, on a basis of scholarship, into three equal groups, or tertiles. Accordingly, counting from the top downward, we have in Table I, 11 graduates who made average grades above 90 per cent and one whose average is 90 per cent, composing the highest tertile division; the other graduates having the average grade 90 per cent and enough more to make 14 composing the middle tertile; and the remaining graduates of the 38 in the group, all below 83 per cent in standing, composing the lowest tertile group. In like manner each of the other tables was divided into tertiles, the divisions being indicated by the vertical lines.

After this was done, a classification was made on the basis of occupations, the tertile divisions being retained. The results of

Name	English				Latin				German				French		Math.		History																																																														
	I		II		III		IV		I		II		III		IV			I		II		Alg.		Pl. G.		Ant.		Am.																																																			
	IV		III		II		I		IV		III		II		I			IV		III		II		I		IV		III		II		I																																															
Name	Science				Other Courses												Kind of College																																																														
	Pysl.				Bot.				Phys.				I				II				III				IV				V				VI				VII				VIII				IX				X																														
	I				II				III				IV				V				VI				VII				VIII				IX				X				I				II				III				IV				V				VI				VII				VIII				IX				X		
NOTE—Give Semester grades and interpret your passing grade in terms of per cent.																																																																															
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this classification are shown, both numerically and graphically, in charts A to J. Thus, in Chart A, it is shown that of the 49 graduates entering agricultural pursuits, 22 came from the lowest tertiles, 22 from the middle tertiles, and only 5 from the highest tertiles. The relative number coming from each tertile is represented graphically by the vertical columns. In the same way the other charts represent the relative scholastic standing of the respective occupation groups indicated.

Table XLIX is a composite of Charts A to J, inclusive, and gives in summary the distribution in tertile by both numbers and percentages of each occupation group. In this table, the number "expected" in each tertile is the number which would be found there in case the distribution were perfectly normal. The "actual" number of each tertile is the number which really are there in this study. And the "percentages" in each case are of the total number in the occupation group which fall in that particular tertile.

In the following table showing the tertile divisions, the large numbers in the lower horizontal lines represent passing grades in each school; the smaller numbers, in the upper horizontal lines in each, represent the number of graduates in that high school receiving the average grade directly below.

TABLE I
DIVISIONS IN TERTILES OF THE 38 GRADUATES OF HIGH SCHOOL NO I.

³	²	⁷		²	¹	²	³	¹	²	²		²	¹	⁰	³	¹	²	²			
80	81	82		83	84	85	86	87	88	89		90	91	92	93	94	95	96	97		

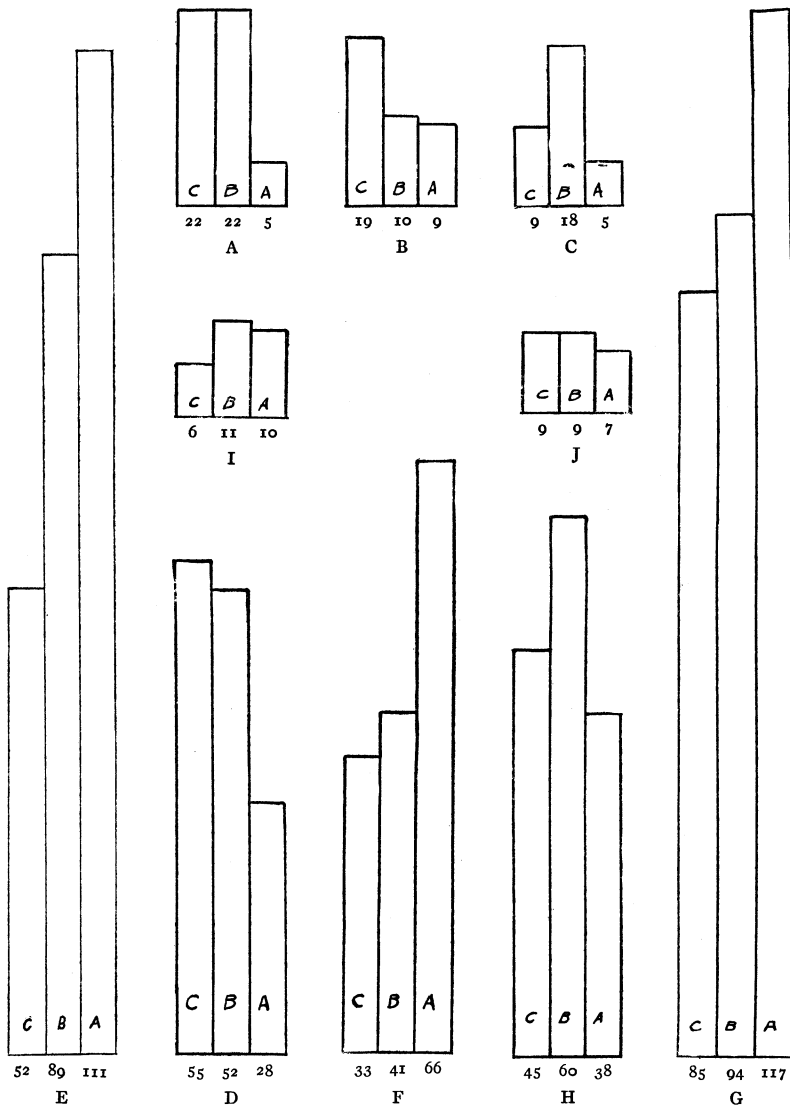
(The 47 other high schools were tabulated. They are omitted from this article.)

INTERPRETATION OF RESULTS AND CONCLUSIONS

Chart E shows that nearly one-half of the 845 graduates entering the teaching profession come from the highest third of the 845, over one-third from the middle, and but slightly more than one-fifth from the lowest.

Chart F shows a very similar distribution for those going to liberal arts colleges.

From Chart D it is apparent that school people and business men agree as to the lack of ability-to-do-things of those who enter



CHARTS A-J.—A: The 49 graduates who entered upon agricultural pursuits; B: Tertile distribution of the 38 graduates who entered the professions. Six of these first attended liberal arts colleges; C: Tertile distribution of the 32 graduates who engaged in business or became business managers; D: Tertile distribution of the 135 graduates who became commercial employees; E: Tertile distribution of the 252 graduates who entered the teaching profession; F: Tertile distribution of the 140 graduates who entered colleges of liberal arts; G: Tertile distribution of the 296 graduates who continued their education in higher schools; H: Tertile distribution of the 143 graduates who married; I: Tertile distribution of the 27 graduates who became musicians; J: Tertile distribution of the 25 graduates who remained at home.

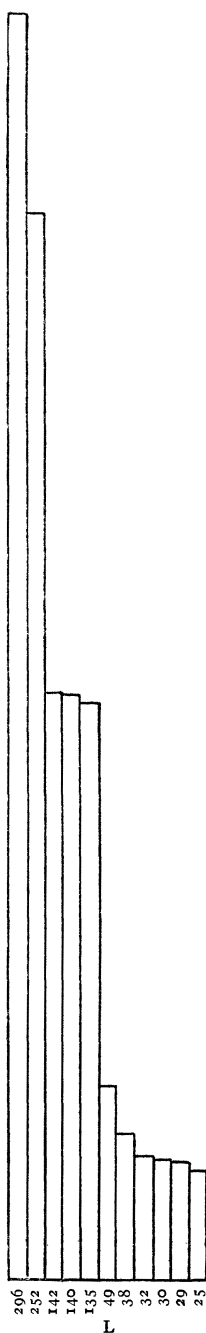


CHART L: Graphic representation of the relative number entering the different occupations. In some instances there are duplications as in the professional group, six first attended L.A. colleges.

TABLE XLIX

Summary of Charts A to J. inclusive, showing the distribution of the 845 graduates according to occupations; giving from each tertile, the "expected," or the distribution which would occur under perfectly normal conditions, the "actual" or distribution which has occurred, and the "percentages" of the whole number entering each occupation which is found in the specific tertile.

	AGRICUL- TURAL PURSUITS			PROFESSIONS			BUSINESS			COMMERCIAL EMPLOYEES			TEACHING			L.A. COLLEGE			ALL WHO WENT TO COLLEGE			GIRLS WHO MARRIED			MUSICIANS			HOME		
	Expected	Actual	Percentage	Expected	Actual	Percentage	Expected	Actual	Percentage	Expected	Actual	Percentage	Expected	Actual	Percentage	Expected	Actual	Percentage	Expected	Actual	Percentage	Expected	Actual	Percentage	Expected	Actual	Percentage	Expected	Actual	Percentage
Highest tertile...	18	5	10	12	9	24	10	5	16	45	28	21	84	111	44	46	66	47	98	117	39	47	38	27	9	10	37	8	7	28
Middle tertile...	17	22	45	14	10	26	12	18	56	45	52	39	84	89	35	48	41	30	100	94	32	49	60	42	9	11	39	9	9	36
Lowest tertile...	16	22	45	12	19	30	10	9	28	45	55	40	84	52	21	46	33	23	98	85	29	47	45	31	9	6	24	8	9	36

the ranks of the commercial employees. The school, too, has declared them to be of but mediocre or poor grade.

Chart A gives nearly all agricultural workers as coming from the lower grades, there being but 10 per cent, the smallest percentage of any group, coming from the highest third.

Chart B shows the professions to have been recruited from the lower third. All but six of this group entered the professions directly. Four of these six are in the highest third, and two in the lowest. These six took liberal arts training before entering upon their professional career.

With the exception of the group continuing their education, in Chart G, the other charts show quite even distributions. Chart G shows a select group, though not so pronounced as in the liberal arts.

Thus our results indicate for the teaching profession in Iowa, the reverse of what was found in New York. Iowa teachers, entering the profession through the high schools, are of the best in scholarship which the high schools have to offer.

The relation of the high schools to the liberal arts colleges is shown to be close.

With respect to the commercial workers, our results seem to justify the schools in replying to the criticism of the commercial employers by suggesting that they offer inducements sufficient to draw a better class of students into the commercial courses of the high schools; and thus attract to their services the better, or at least an average, quality of the schools' product.

With regard to the general question of the relation of the high schools to the requirements of the state, our results point to interesting conclusions. We have seen that those taking up the work of agriculture—the business of first importance to Iowa—are the lowest in scholastic standing of any occupation group. Then there are but 49 who engaged in this work; these 49 coming from 48 high schools, located in as many communities. The facts suggest the following questions: Why did not more of the high-school students of superior ability take up agricultural pursuits after graduation? Why did not the great number of boys who would logically have graduated from these high schools in the class of 1908, and who must have become farmers, finish the high-school

course? In the 48 communities, there must have been more than 49 boys who became farmers or who engaged in farm work. To what extent did these high schools succeed in training for farm work, the ones who did graduate? And, finally, why have the high schools been so slow to offer the sort of training which would have attracted their better students, which would have held those who dropped out, and which would have given some specific training for those graduates who did enter upon this work which is of first importance to the prosperity and happiness of the state? The answer to the first three is implied in the fourth and last question. The high schools have failed to make provision for those interested in agriculture. In answer to the fourth question, we must blame the colleges for failing to recognize value in subjects other than the traditional ones, the people in control for demanding that at all hazards the "road to college" be kept open, and the teachers for being such ardent supporters of the "go-to-college" idea that they lost sight of greater things. All must be blamed for catering to the benefit of the favored few who have been able to profit by the work of the high school, meanwhile ignoring the needs of the majority and, indirectly, the greater needs of the state.

However, the situation has its brighter side. Since 1908 Iowa has established a system of normal-training high schools, designed to train teachers for the rural schools, training in agriculture and domestic science being a part of the required course. Also, since this study was begun, through the activity of the Iowa State Teachers Association, a law has been passed which provides that "the teaching of elementary agriculture, domestic science, and manual training shall, after the first day of July, 1915, be required in the public schools of the state." Also, "after the date aforesaid, elementary agriculture and domestic science shall be included among the subjects required in the examination for a teacher's certificate of those applicants who are required by the provisions of this act to teach agriculture and domestic science."

These provisions, backed by state aid and supervised by the state department through a force of five inspectors, assisted by better paid and better qualified county superintendents, show clearly that Iowa is coming to a recognition of her *real* problems in education.